The impact of post traumatic stress disorder in Vietnam veterans on marital satisfaction and spouse/partner depression and the role of attributions

Kimberly A. Speck

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Abstract

This study examined the relationship between Post Traumatic Stress Disorder (PTSD) symptoms in Vietnam veterans (n=50) and marital satisfaction and depression in their spouse/partners (S/P). In line with previous research, veterans with higher scores on a PTSD assessment had S/Ps with higher levels of depression and lower levels of marital satisfaction. There was not a statistically significant relationship between S/P's depressive symptoms and the S/P's level of marital satisfaction. The S/P attributing their veteran's behavior to their war experience (Vietnam attributions) did not impact these relationships. Responsibility attributions, or believing that the veteran's behavior was done on purpose to hurt the other person or the behavior was done for selfish reasons, explained a significant amount of the variance in the PTSD-marital satisfaction relationship but did not act as a moderator and did not play a role in the PTSD-depression relationship. Clinical implications are discussed.

Introduction

Post Traumatic Stress Disorder (PTSD) is a recognized mental disorder that can develop in response to a calamitous event such as combat and "can disrupt virtually every aspect of normal functioning" (Weathers, Keane, and Foa, 2009, p.23). Symptoms of PTSD include re-experiencing the event, avoidance of stimuli associated with the event, and increased arousal. The estimates of PTSD among Vietnam veterans range from 13-15% (Cozza, 2005) to 19-30% (Dohrenwend, et. al., 2006). The National Vietnam Veterans Readjustment Study (NVVRS) found that 30% of male Vietnam Veterans met criteria for PTSD sometime during their lifetime (Kulka et al., 1990). PTSD has been associated with frequent co-morbidity of psychological disorders such as depression, substance abuse, and other anxiety diagnoses (Brown, Campbell, Lehman, Grisham & Mancill, 2001; Kessler, Sonnega, Bromet, Hughes & Nelson, 1995; Orsillo et al., 1996).

While the consequences of PTSD on the individual can be great, research indicates that the impact of PTSD stretches beyond the trauma survivor. This study will examine the relationship between veteran PTSD and spouse/partner (S/P) depression and marital satisfaction. In addition, we will examine the potential moderating role of attributions on the association between veteran PTSD and S/P difficulties. With approximately 15 percent of soldiers serving in Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) screening positive for PTSD, understanding such an association may inform future prevention interventions in families that are currently fighting the War on Terrorism as well as directing treatment efforts for both the service member and their S/Ps.

PTSD and Spouse/Partner Symptoms

Research has provided significant evidence that trauma impacts not only the victim, but also affects their families, particularly their significant others (Coughlan & Parks, 1987; Jordan et al., 1992; Kulka et al, 1990; Mikulincer, Florian, and Soloman, 1995; Renshaw, Rodrigues, and Jones, 2008; Solomon et al., 1992). Studies have indicated that spouse/partners of veterans suffering from PTSD also suffer from problems including: neglect of personal appearance, withdrawal, tearful episodes, lack of concentration, indecisiveness, and sleep disturbance (Coughlan & Parkin, 1987). These S/Ps have also been found to experience less happiness, less life satisfaction, increased alcohol problems, more thoughts of having a nervous breakdown, and have more somatic problems (Jordan et al, 1992; Dirkzwager, Bramsen, Ader, van der Ploeg, 2005; Kulka et al., 1990; Mikulincer, Florian, & Solomon, 1995). Renshaw, Rodrigues, and Jones (2008) found that wives of veterans with PTSD had mean scores on the measures of depression that were nearly twice that of the normative sample reported by Radloff (1977). They reported that almost half (44.9%) of wives of soldiers serving in OIF met or exceeded the cutoff score indicating the possible presence of clinical depression.

PTSD and Marital Satisfaction

Studies have shown that trauma symptoms in soldiers were associated with significantly less relationship satisfaction for both soldiers and their female partners (Nelson Goff, Crow, Reisbig, and Hamilton, 2007; Riggs, et al., 1998; Jordan et al., 1992; Kulka, et al., 1990). Research has also shown that veterans who suffer from PTSD have lower levels of marital satisfaction (Dekel, Enoch, & Solomon, 2008; Dirkzwager, Bramsen, Ader, van der Ploeg, 2005, Hendrix, Erdmann, & Briggs, 2000; Jordon et al., 1992; Mikulincer, Florian & Solomon, 1995; Solomon et al., 1992). Dutch military peacekeepers with PTSD were found to experience more

marital relationship problem than those without PTSD (Dirkzwager et al., 2005) and Vietnam veterans with PTSD were found to report more relationship distress than Vietnam veterans without PTSD (Riggs et al., 1998). Spouse/partners of veterans with PTSD report more marital problems (Kulka et al., 1990) and spouses of Israeli veterans with PTSD had lower levels of marital satisfaction than the general population (Dekel, Solomon, & Bleich, 2005).Wives of Israeli veterans with combat stress reaction report lower levels of intimacy (Mikulincer, Florian, & Solomon, 1995). Hendrix, Erdmann, & Briggs (2000) found that veterans' rating of arousal was significantly negatively correlated with S/P marital satisfaction.

Veterans with PTSD have heightened levels of anger and hostility (Carroll et al., 1985; Chemtoob, Hemada, Roitblat, & Muraoka, 1994; Lasko et al., 1994; Frueh, Henning, Pelegrin, & Chobot, 1997; Beckham & Moore, 2000) and display increased verbal and physical aggression (Dekel & Solomon, 2006). It is possible that these arousal symptoms act as the mechanism for the link between PTSD and lower marital satisfaction. Gottman and Notarius (2000) state that the increased physiological reactivity in partners with PTSD is related to hostile and negative interactions that lead to marital dissatisfaction. Beckham, Moore, & Reynolds (2000) state, " Vietnam veterans with PTSD may not only have increased hostile affect and cognitions, but also exhibit particularly poor control of violent reactions and/or habitual antagonistic behavior in response to anger-provoking situations" (pg. 453). Increased anger in Vietnam veterans has been associated with both the veterans' and their partners' reports of family functioning (Evans et al., 2003) and marital distress (Riggs et al., 1998; Hendrix, Erdmann, & Briggs, 2000; Solomon et al., 1991).

Marital Satisfaction and Depression

A substantial amount of research indicates that there is an inverse relationship between marital satisfaction and depression (Beach, Sanden, & O'Leary, 1990; Coleman, & Miller, 1975; Fincham, Beach, Harold, & Osborne, 1997; Grames et al., 2008; Sacco & Phares, 2001; Whisman & Bruce, 1999; Whisman, 1999; Fincham and Bradbury, 1993). However, the relationship between marital satisfaction and depression is a complex and bi-directional one. Marital distress has been linked to both the development and the maintenance of depression (Assh & Byers, 1996; Beach & O'Leary, 1993; Beach, Ktaz, Kim & Brody, 2003; Solomon et. al, 1991; Gotlib & Whiffen, 1989; Schmaling, & Jacobsen, 1990; Whisman, 2001; Gordon, Friedman, Miller & Gaertner, 2005). Other studies have found that depression accounts for the decrease in marital satisfaction (Coleman & Miller, 1975 and Sacco & Phares, 2001). Coyne and Berazon (2000) found that depression led to an increase in poor interpersonal interactions which in turn increased the likelihood of depression. A study conducted by Fincham, Beach, Harold and Osborne (1997) indicated that marital satisfaction was related to later depression for women. The same study indicated that the opposite model was true for men, that depression was related to later marital satisfaction.

Impact of Attributions

Attributions, or how individuals explain the behavior of others, have been found to have a relationship with psychological symptoms. Previous research has shown that depressed individuals are more likely to attribute negative outcomes to internal, stable and global causes (Abramson, Seligman, & Teasdale, 1978; Abramson, Alloy, & Metalsky, 1989; Brewin, 1985; Heeme, Buysse. Van Oost, 2007; Flett, Glankstein, and Kleinfeldt, 1990). It is thought that by attributing behavior to an internal and stable cause, the person feels they have no control or

ability to change the situation, which leads to a feeling of hopelessness about future events. This feeling of hopelessness puts the individual at risk for depression (Byrne & MacLeod, 1997; Joiner et. al., 2001; Miller, Klee & Normal, 1982; Peterson & Seligman, 1983; Sweeney, Anderson & Bailey, 1986; Swendson, 1997).

Research indicates a relationship between attributions and marital satisfaction. Responsibility attributions are evaluative: Was the partner's negative behavior done on purpose to hurt the other person? Was the behavior done for selfish reasons?
Responsibility attributions appear to play a role in both the development and maintenance of marital distress (Fincham & Bradbury, 1993; Johnson, Karney, Rogge & Bradbury, 2001; Karney & Bradbury, 2000). Fincham and Bradbury (1992) have found that responsibility attributions may also play a role in marital satisfaction. Vietnam attributions are conceptualized as a S/P associating or blaming the veteran's behavior on his experience in Vietnam. A few studies have explored the relationship between perceptions, PTSD, and marital satisfaction. They found that spouses' psychological well being and marital satisfaction can be at least partially mediated by their perception of burden of living with someone with PTSD (Beckham, Lytel, & Feldman, 1996; Calhoun, Beckham, & Bosworth, 2002; Dekel et al., 2005). Renshaw, Rodrigues, and Jones (2008) found that spouses' perception of the level of combat activity experienced determined the strength of the relationship between spouse marital satisfaction and soldier PTSD symptoms. When spouses perceived a high level of combat experiences, there was no relationship between the veterans' PTSD and the spouse martial satisfaction; but if the spouse perceived a low level of combat experience, there was a strong, negative relationship between the veterans' PTSD and the spouses' marital satisfaction.

This study was designed to examine how PTSD in Vietnam veterans impacts their S/P. Based on past research, four hypotheses have been formed. First it is hypothesized that S/P of veterans with PTSD will have higher levels of depression and lower levels of marital satisfaction (arrows #1, Figure 1). Next it is hypothesized that there will be an inverse relationship between these variables and that marital satisfaction will play a role in the development and maintenance of depression (arrow #2, Figure 1). It is also hypothesized that if the S/P can cognitively link the veteran's behavior to his PTSD, this will lessen the impact of PTSD on both depression and marital satisfaction of the S/P (arrows #3, Figure 1). Finally, it is predicted that Vietnam attributions and responsibility attributions will each moderate the PTSD-depression and PTSD-marital satisfaction relationships. While researchers have looked at pieces of this puzzle no one has examined how these four pieces fit together. Examining the relationship between PTSD, marital satisfaction, depression and impact of attributions may ultimately help in illuminating the complex psychosocial and behavioral contributions to spouse/partner depression.

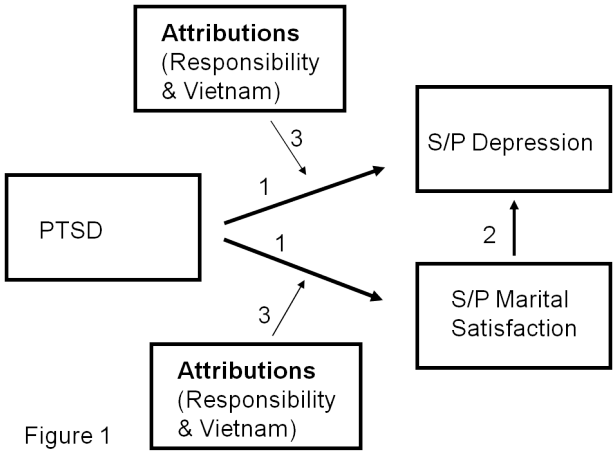

Figure 1

Methods

Participants

For the current study, de-identified data was obtained from the primary researcher with the permission of the Boston Department of Veterans Affairs Medical Center. Participants were 50 heterosexual couples recruited through flyers and word of mouth of staff members at a Department of Veterans Affairs Medical Center in a large Northeastern city. All male subjects had served in Vietnam between 1965 and 1973. Participants were excluded if they were actively psychotic, could not read and write sufficiently well to complete the questionnaires included in the study, or had not been cohabitating with their S/P for one year prior to the study. All participants were asked to refrain from alcohol or drug use for 24 hrs prior to participating in the study.

Measures

The Dyadic Adjustment Scale (DAS) (Spanier, 1976) is a 32 item variable Likert type self report questionnaire that has been widely used to assess relationship satisfaction. Total scores range from 0 to 151, with higher scores indicating greater relationship satisfaction. Scores below 98 on the total DAS are generally considered to reflect clinical significant distress within the relationship (Heyman, Sayers, & Bellack 1994). The internal consistency, measured using Cronbach's alpha, is .91-.96 for the total scale (Spanier, & Thompson, 1982; Fisher, & Corcoran, 2000). The correlation between the DAS and the LockeWallace Marital Adjustment Scale has been reported at .86 for married people and .88 among divorced individuals (Spanier, 1976).

The Beck Depression Inventory (BDI) (Beck, Steer, & Brown, 1996) is a 21 item self report questionnaire to measure the severity of depression. Participants rated how they have been feeling for the past two weeks and each answer was scored on a scale of 0-3, higher scores indicating a

higher level of depression. A total score of 0-13 indicates minimal depression, 14-19 mild depression, 20-28 moderate depression, and 29-63 severe depression. The internal consistency of the BDI ranges from .80-.91. In 35 studies examining the correlation between the BDI and other measures of depression, the BDI was found to have a correlation coefficient ranging from .55-.72 with a mean of .72 in psychiatric patients. For nonpsychiatric patients the correlation coefficients ranged from .55 to .73 with a mean of .60 (Beck, Steer, & Garbin, 1988).

The PTSD Checklist Military Version (PCL-M) (Weathers et al, 1993) is a 17 item self report questionnaire that corresponds to the DSM IV diagnostic criteria for PTSD. The PCL-M has good sensitivity (.82), specificity (.83), and excellent internal consistency (Cronbach alpha coefficient .86) (Weathers et al., 1993). Subjects indicated the extent to which they have experienced each symptom within the last month using a 5-point Likert type scale ranging from "Not at all" to "extremely." Items endorsed as moderate (a rating of three) were considered present symptoms. Subjects were considered to have PTSD if they endorsed at least one reexperiencing, three avoidance and two arousal symptoms. The PCL has been validated with the Clinician-Administered PTSD Scale (CAPS) with an alpha of .94 (Blanchard, Jones-Alexander, Buckley, and Forneris, 1996). Blanchard et al (1996) recommend a cutoff score of 44 for maximal diagnostic efficiency.

The Relationship Attribution Measure (RAM) (Fincham & Bradbury, 1992) is 24 item self report measure that indicates different types of attributions for partner's hypothetical behaviors. Higher scores indicate more negative attributions. The measure assesses six dimensions divided into two subscales. The causal attribution subscale looks at locus, stability, and globality of the partner's behavior. The responsibility subscale looks at motivation, intentionality, and justification for the partner's behavior. The RAM is a reliable measure, with all scales having a consistency coefficient above .70 and a valid measure highly correlated with marital satisfaction and anger (Fincham &

Bradbury, 1992). A question was added to the RAM to assess if the S/P's attributed the veteran's behavior to their experience in Vietnam.

Procedures

This study used data collected in 1996 by Riggs et al examining the quality of intimate relationships and problems with intimate relationships associated with PTSD among Vietnam Veterans (Riggs, Byrne, Weathers, Litz, 1998). The procedure, as outlined in the parent study, was that participants responded to a flyer by calling the research team who provided additional information about the study and scheduled an appointment for the couple. When couples arrived at the clinic, a researcher described the study procedures to the couple and had each member sign a consent form. Couples were then separated into different rooms where they completed the questionnaires. Each participant then met individually with a member of the research team to discuss concerns that had been raised by the questionnaires, answer any questions, and be debriefed about the study.

Data Preparation and Analyses

Prior to analyzing the data, any participant missing responses to 15% or more of the items from any individual scale was removed from the analysis of that scale. If less than 15% of items were missing from a scale, the responses were prorated to estimate the full scale score. Correlations were used to examine the associations among the continuous variables of PTSD, depression, and marital satisfaction. Then the two hypothesized models of moderation were examined via a series of hierarchical linear regressions. The first model, predicted that PTSD (independent variable) would be associated with spouse/partner depression (dependent variable), and it was expected that this relationship would be moderated by attributions. In the second model, analysis investigated whether PTSD (the independent variable) is associated with spouse/partner marital satisfaction (dependent

variable), and whether this association was moderated by attributions. We conducted secondary analysis to look at the arousal symptoms subscale of the PTSD measure to examine if those particular symptoms had a greater impact on the PTSD-depression and PTSD-marital satisfaction relationships. Based on prior research, it was thought that the increased anger, hostility, and verbal and physical aggression characteristic of the arousal symptom cluster might be the mechanism for decreased marital satisfaction. Examining the arousal symptom cluster specifically may provide clearer picture of these relationships.

Results

Means and standard deviations for the primary study variables are presented in Table 1. Overall, the sample had a mean score of 46.98 on the PCL-M and a median score of 45, indicating that about half of the Vietnam Veterans in this sample met the criteria for PTSD. The S/P BDI scores indicate that this sample reported a minimal level of depression. The DAS scores indicate that the S/Ps in this sample were experiencing some marital distress.

Table 1. Summary of Scores (means, standard deviations and 95% confidence interval) on the PCL-M, RAM, DAS, and BDI

Variables	n	M (SD)	95% CI
Veteran's Level PTSD (PCL-M total)	50	46.98 (19.51)	[41.43, 52.53]
Veteran's Level of Reexperiencing Symptoms (PCL-M Reexperiencing Subscale)	50	12.76 (6.60)	[10.88, 14.64]
Veteran's Level of Avoidance Symptoms (PCL-M Avoidance Subscale)	50	22.22 (9.31)	[19.57, 24.87]
Veteran's Level of Arousal Symptoms (PCL-M Arousal Subscale)	50	15.26 (5.74)	[13.63, 16.89]
Responsibility Attributions (RAM Responsibility Subscale)	49	30.90 (13.66)	[26.97, 34.82]
Vietnam Attributions (RAM Vietnam Attribution Subscale)	47	13.83 (7.16)	[11.73, 15.93]
S/P Marital Satisfaction (DAS)	49	99.00 (15.62)	[94.51, 103.49]
S/P Depression (BDI)	50	9.32 (8.84)	[6.81, 11.83]

Pearson product-moment correlations were used to examine the relationship between S/P depression symptoms and the veteran's PTSD symptoms. Analysis indicate that higher PCL-M scores were associated with more S/P depressive symptoms ($r(48) = .28$, $p < .05$). Further analysis indicates that veterans who endorsed more symptoms on the re-experiencing cluster ($r(48 = .31$, $p < .05$) or the arousal cluster ($r(48) = .34$, $p < .05$) were more likely to have S/P who endorsed depressive symptoms. S/Ps of veterans who endorsed symptoms on the avoidance cluster did not endorse a statistically significant increase in depressive symptoms ($r(48) = .22$, $p < .10$).

To examine the relationship between veteran's levels of PTSD and S/P marital satisfaction, a Pearson product-moment correlation were computed. One couple was omitted from this analysis because the partner did not complete the Dyadic Adjustment Scale. Results indicate that higher PCL-M scores were correlated with S/P who endorse lower levels of marital satisfaction ($r(47) = -.42$, $p < .01$). Analysis of the PTSD symptom clusters indicated a similar relationship between each of the symptom clusters and the S/P's level of marital satisfaction. Veterans that endorsed reexperiencing ($r(47) = -.32$, $p < .05$), avoidance ($r(47) = -.45$, $p < .01$), and arousal ($r(47) = -.41$, $p < .01$) symptoms had S/P who indicated less marital satisfaction. Pearson product-moment correlations were used to compare the relationship between S/P depression symptoms and the S/P's indication of marital satisfaction. Results indicate that there is not a statistically significant relationship between S/P's depressive symptoms and the S/P's level of marital satisfaction ($r(47) = -.27$, $p = .06$), but there was an indication that S/P's with increased depressive symptoms trended towards lower levels of marital satisfaction.

Hierarchical multiple regression analyses were used to explore the possible moderating effect of attributions on the PTSD-S/P depression relationship. Vietnam attributions were assessed first to see if the S/P associated the veteran's behavior with their experience in Vietnam

impacted the PTSD-depression relationship. Responsibility attributions were also assessed to examine if the S/P thoughts that veteran's negative behavior was done on purpose would affect the PTSD-depression relationship. Results are presented in Table 2.

Table 2: Hierarchical Multiple Regression Analyses Predicting S/P Depression From Veteran's PTSD and Vietnam and Responsibility Attributions.

	Vietnam Attributions		Responsibility Attributions	
Predictor	ΔR^2	Beta	R2 change	Beta
Veteran's PTSD	0.07	0.26	.07	.27
Attribution	0.02	0.233	0.01	0.07
PTSD X Attribution	0.07	0.428	0.01	-0.32

*p<.01

Contrary to expectations, veteran's total PTSD symptoms were not strongly related to S/P's depressive symptoms. In fact, the veteran's level of PTSD accounted for only seven percent of the variance in the S/P's BDI score. In this model the Vietnam attributions and the responsibility attributions also played a very minor role in accounting for the variance of S/P depression. There was not a significant interaction between total PTSD symptoms and attribution. In this model attributions and the PTSD-attribution interaction still were not significant.

Next we examined the relationship between PTSD and marital satisfaction. Results are presented in Table 3.

Table 3: Hierarchical Multiple Regression Analysis Predicting S/P Marital Satisfaction From Veteran's PTSD and Vietnam and Responsibility Attributions

	Vietnam Attributions		Responsibility Attributions	
Predictor	ΔR^2	β	ΔR^2	β
Veteran's PTSD	.19*	-0.44	.18*	-.42*
Attribution	0	-0.07	.23*	-.48*
PTSD X Attribution	0.01	0.51	0	-.22

*p<.01

Veteran's total PTSD symptoms explained a significant amount of the variance in the S/Ps' martial satisfaction (18% for Vietnam attributions and 19% for responsibility attributions). The responsibility attributions, but not the Vietnam attributions also explained a significant amount of the S/P marital satisfaction (23%).Neither type of attribution acted as a moderator.

Next we used hierarchical multiple regression analyses to explore the relationship between the arousal symptom cluster and the possible moderating effect of attributions on the PTSD arousal symptom cluster-S/P depression relationship. Results are presented in Table 4.

Table 4: Hierarchical Multiple Regression Analysis Predicting S/P Depression From Veteran's Arousal Symptoms and Vietnam and Responsibility Attributions

	Vietnam Attributions		Responsibility Attributions	
Predictor	ΔR^2	β	ΔR^2	β
Veteran's Arousal Symptoms (AS)	.11	.33	.11	.33
Attribution	0.01	0.13	0	0.05
Arousal Symptoms X Attribution	0.01	0.42	0.02	-0.64

*p<.01

Veterans' arousal symptoms were not a significant related to S/P depressive symptoms. Vietnam attributions and responsibility attribution did not play a statistically significant role in the relationship between the veteran's arousal symptoms and the S/P depressive symptoms. Neither type of attributions acted as a moderator in the relationship.

Lastly we examined the relationship between the arousal symptom cluster and marital satisfaction. Results are presented in Table 5.

Table 5: Hierarchical Multiple Regression Analysis Predicting S/P Marital Satisfaction from Veteran's Arousal Symptoms and Vietnam and Responsibility Attributions

	Vietnam Attributions		Responsibility Attributions	
Predictor	ΔR^2	β	ΔR^2	β
Veteran's Arousal Symptoms (AS)	.17*	-.41*	.17*	-.42*
Attribution	.01	-.13	.22*	-.47*
Arousal Symptoms X Attribution	.01	.48	.01	-.46

*p<.01

The arousal symptoms accounted for a significant amount of the marital satisfaction variance (17%). In this model the responsibility attributions explained a significant amount of the S/P marital satisfaction (22%), but did not act as a moderator. Vietnam attributions explained very little of the variance in S/P's marital satisfaction, and did not moderate the relationship.

Discussion

This study examined the relationship between Vietnam veterans' level of PTSD and their S/P's depressive symptoms and marital satisfaction. As expected and consistent with the literature, veterans' PTSD symptoms were positively correlated with their S/Ps' depressive symptoms ($r(48) = .28$, $p < .05$) and negatively correlated with marital satisfaction ($r(47) = -.42$, $p < .01$). Contrary to our prediction and most previous research S/P's level of marital satisfaction was not related to their level of depression.

Solomon and colleagues (1992), thought that reason the wives of Israeli Defense soldiers with Combat Stress Reaction (CSR) or PTSD had a higher incidence of depression may be due to the fact that they like their husbands, had suffered a significant loss - the man they had married had changed significantly thus changing their lives for the worse. In this study, many of the marriages/partnerships formed after the Vietnam War. This could mean that the S/P depressive symptoms are not a result of the change in the veteran. Another possible mechanism is what Figley (1993) characterized as secondary traumatic stress and stated it is the "natural consequent

behaviors and emotions resulting from knowledge about a traumatizing event experienced by a significant other" (pg. 7).

This study also examined whether the types of attributions made by the S/P would impact the relationship between the veteran's PTSD and the S/P depressive symptoms and marital satisfaction. Our results indicate that attributions did not play a role in the PTSD-S/P depression relationship, but did play a role in the PTSD-S/P marital satisfaction relationship. While the responsibility attribution did not moderate the relationship between PTSD and S/P marital satisfaction, it did explain a significant amount of the variance. Interestingly, the Vietnam attributions did not play a role in the PTSD-S/P marital satisfaction relationship. While many people have examined the relationship between PTSD and S/P psychopathology and marital satisfaction, applying the concepts of attributions to couples where one individual has PTSD is relatively new in the literature. Renshaw, Rodrigues, and Jones (2008) suggested that the impact of soldier symptoms on S/P may be lessened if the S/P can attribute the veteran's symptoms to a cause, such as combat. Bradbury and Fincham (1990) have stated that responsibility attributions are more strongly related to marital distress than attributions without an intentionality component. They speculate that people may be less reactive their partner's behavior if they believe their behavior is due to something else and out of the partner's control. These findings both support and contradict Bradbury and Fincham's belief that if the partner views the negative behavior as beyond the veteran's control, the negative behavior will have less of an impact on the S/P. In this case if the S/P attributed the negative behavior to Vietnam that did not change the relationship between the veteran's PTSD and the S/P's satisfaction, even though Vietnam would be out of the veteran's control. If the S/P attributed the veteran's negative behavior to

intentionally trying to hurt them (responsibility attribution) it did play a significant role in the PTSD-marital distress relationship, explaining 23 percent of the variance.

In addition to studying the veterans' total PTSD, this study examined the arousal symptom cluster. Some of the hallmark arousal symptoms are irritability or anger outbursts, hypervigilance, and exaggerated startle response. These symptoms have been shown to have negative impact on marital relationships. In this study, the veterans' arousal symptoms were not significantly related to the S/Ps' depressive symptoms but were significantly related to the S/Ps' marital satisfaction (explain 18-19 percent of the variance). It is possible that these arousal symptoms are what drive the relationship between PTSD and lower marital satisfaction. Gottman and Notarius (2000) state that the increased physiological reactivity in partners with PTSD is related to hostile and negative interactions that lead to marital dissatisfaction. Beckham, Moore, & Reynolds (2000) state, " Vietnam veterans with PTSD may not only have increased hostile affect and cognitions, but also exhibit particularly poor control of violent reactions and/or habitual antagonistic behavior in response to anger-provoking situations" (pg. 453).

Matsakis (1998) found that wives of Vietnam veterans most commonly reported their problems as: coping with the veteran's problems, feeling overwhelmed, confused, and responsible, loss of control over their life, and self-blame. These feelings are representative of the subjective burden that constitutes a piece of caregiver burden. Partners of veterans with PTSD have been shown to have higher levels of caregiver burden and poorer psychological adjustment (Calhoun, Beckham, & Bosworth, 2002; Beckham, et al., 1996; Beckham, et al., 1996). It may be that when the S/P is affectively stimulated by the veteran's hostile behavior they are not able to see that behavior as a consequence of their experience in Vietnam. Instead of attributing the behavior to Vietnam, they believe that the veteran is acting that way on purpose in

an attempt to hurt them. These areas could be potential targets for therapy interventions. In clinical settings, in addition to dealing with the veteran's PTSD, clinicians should also ask about veteran's relationship with their S/P. It is possible that the S/P could benefit from therapy or that couple's therapy could be beneficial.

Cognitive theory states that human behavior and emotions are determined by one's thought processes. This study showed that S/P's responsibility attributions explained a significant amount of the variance of the S/P marital satisfaction (22%). Renshaw, Rodrigues, and Jones (2008) found that the S/P's perceived level of combat impacted their attributions of the veteran. The S/P's perception of the level of combat the veteran participated in may be impacting the relationships in this study. Another possibility may be the S/P perception of PTSD and duration and impact several years later. If S/Ps believe that the veteran should be "over it by now" they may be more likely to attribute their negative behavior to the individual instead of attributing it to PTSD. So once in therapy, responsibility attributions (cognitions) may be one area to focus on. Helping the S/P better understand how PTSD impacts the veteran's behavior and working to reframe automatic thoughts about why the veteran acts the way he does may be one way to help couples become more satisfied in their relationship. Monson, Guthrie, and Stevens (2003) are researching the efficacy of couples-based Cognitive Behavioral Therapy for PTSD.

There are a number of limitations when interpreting these results. First, the sample is small, yielding low power to detect interactions. Each of the non-significant findings reported were inadequately powered (11-16%). It is possible that this limitation may have made it impossible to detect an interaction that was significant. The sample was also limited to volunteers with many of the veterans seeking or receiving treatment for Vietnam-related

problems. This group may not be representative of the population. This study used a sample of Vietnam veterans which may not be generalizable to other non-Vietnam Veteran PTSD populations. Several regressions were run to test the hypotheses proposed in this study. This may have increased the likelihood of Type I error. While the study asked veterans to abstain from substance use for 24 hours prior to participation, there is the possibility that participants' responses were impacted by substance use. The study did not assess for co-morbid disorders that could impact their interactions with their S/P. Veterans with PTSD are more likely than veterans without PTSD to have substance abuse problems, be depressed, have physical health difficulties, and not be employed (Keane & Wolfe, 1990; Kulka et al., 1990; Litz, Keane, Fisher, Marx & Monaco, 1992); each of which can also impact their relationships with S/P.

In-line with previous research, this study found that veterans with higher scores on a PTSD assessment had S/Ps with higher levels of depression and lower levels of marital satisfaction. This study also showed that responsibility attribution may be playing a role in the PTSD-marital satisfaction relationship. Future studies should examine veterans and their S/P from the ongoing military conflicts including the impact of PTSD on female veterans and their S/Ps. Because many more military members are married now, findings in this area could play an important role in helping military couples remain psychologically healthy following exposure to traumatic events during deployment.

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